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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended and new claims added to clarify Applicants disclosed and claimed invention.

No new matter has been added.

For example, support for the amendments is found in the originally and previously presented claims, the Figures (e.g., Figure 2), and in Specification e.g.,

[0030] According to the present invention, the showerhead 44 is mounted in the process chamber 36 using multiple exterior fasteners 56. Each of the exterior fasteners 56 typically includes a fastener head 58 from which extends a threaded shank 60. As shown in FIG. 2, the showerhead 44 is mounted in the process chamber 36 by **extending the threaded shank 60 of each exterior fastener 56 through a corresponding chamber wall fastener opening 52 which extends laterally through the chamber wall 38, and threading the threaded shank 60 into a registering showerhead fastener opening 54 which extends into the lateral surface of the showerhead 44.**

[0031] As shown in FIG. 3, multiple exterior fasteners 56 are used in the manner heretofore described to mount the showerhead 44 in the process chamber 36. **The exterior fasteners 56 may be equally spaced from each other along the circumference or perimeter of the chamber wall 38.** In a preferred embodiment, eight of the exterior fasteners 56 are used to mount the showerhead 44, as shown, although a lesser or greater number of

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exterior fasteners 56 may be used, as desired.

[0033] It will be appreciated from a consideration of FIG. 2 that each showerhead fastener opening 54 in the showerhead 44 is substantially sealed off from the chamber interior 42 **by abutment of the showerhead 44 against the chamber wall 38. Consequently, the exterior fasteners 56 extend into the showerhead 44 in such a manner that each of the exterior fasteners 56, as well as the regions of the showerhead 44 which contact the exterior fasteners 56, is substantially isolated from the chamber interior 42 in** which processing of the wafer 50 is carried out. Accordingly, **particles generated by friction between the showerhead 44 and the threaded shank 60, induced by thermal expansion and contraction cycling of the showerhead 44 during processing, are incapable of inadvertently falling into the chamber interior 42 and contaminating a wafer 50 being processed therein.**

Claim Rejections 35 USC § 112

1. Claims 1-8 stand rejected under 35 U.S.C. §112 as failing to comply with the written description requirement.

Examiner asserts that the phrase "structurally isolated from said chamber" as in Applicants claims 1 is not described in the specification.

"a plurality of exterior fasteners extending through said chamber wall and into said showerhead, with said plurality of exterior fasteners structurally isolated from said chamber interior."

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Applicants refer Examiner to the following portions of the MPEP relating to the written description requirement:

Applicants respectfully refer Examiner to the following relevant portions of the MPEP and the case law:

ADEQUACY OF WRITTEN DESCRIPTION

A. Read and Analyze the Specification for Compliance with 35 U.S.C. 112, para. 1

Office personnel should adhere to the following procedures when reviewing patent applications for compliance with the written description requirement of 35 U.S.C. 112, para. 1. The examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. There is a strong presumption that an adequate written description of the claimed invention is present in the specification as filed, *Wertheim*, 541 F.2d at 262, 191 USPQ; however, with respect to newly added or claims, applicant should show support in the disclosure for the new or amended claims.

“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)

It is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification.

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See MPEP, 8th Ed, Section 2163 (I)

While there is *no in haec verba* requirement, newly added claim limitations must be supported in the specification through **express, implicit, or inherent disclosure.**

See MPEP, 8th Ed, Section 2163 (I) (B)

The fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. See, e.g., *Vas-Cath, Inc.*, 935 F.2d at 1563-64, 19 USPQ2d at 1117.

Possession may be shown in many ways. For example, possession may be shown by describing an actual reduction to practice of the claimed invention. Possession may also be shown by a **clear depiction of the invention in detailed drawings** or in structural chemical formulas which permit a person skilled in the art to clearly recognize that applicant had possession of the claimed invention. An adequate written description of the invention may be shown by **any description of sufficient, relevant, identifying characteristics** so long as a person skilled in the art would recognize that the inventor had possession of the claimed invention. See, e.g., *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323, 56 USPQ2d 1481, 1483 (Fed. Cir. 2000)

Applicants respectfully contend that one of ordinary skill would clearly understand that Applicants invention encompasses and **explicitly refers to** structurally isolated fasteners i.e., see Figure 2 and Specification at:

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[0033] It will be appreciated from a consideration of FIG. 2 that each showerhead fastener opening 54 in the showerhead 44 **is substantially sealed off** from the chamber interior 42 by abutment of the showerhead 44 against the chamber wall 38. Consequently, **the exterior fasteners 56 extend into the showerhead 44 in such a manner that each of the exterior fasteners 56, as well as the regions of the showerhead 44 which contact the exterior fasteners 56, is substantially isolated from the chamber interior 42** in which processing of the wafer 50 is carried out. Accordingly, particles generated by friction between the showerhead 44 and the threaded shank 60, induced by thermal expansion and contraction cycling of the showerhead 44 during processing, are incapable of inadvertently falling into the chamber interior 42 and contaminating a wafer 50 being processed therein.

See also original claims 13 and 19:

13. A method of mounting a showerhead in a process chamber having a chamber wall defining a chamber interior, comprising the steps of: extending a plurality of fasteners into engagement with the showerhead and the process chamber; and **structurally isolating said plurality of fasteners from the chamber interior.**

19. The method of claim 14 wherein said **structurally isolating** said plurality of fasteners from the chamber interior comprises the step of abutting the showerhead against the chamber wall.

Examiner has not explained why one of ordinary skill would not understand that Applicants had possession of their claimed

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invention where Applicants have explicitly explained and defined their claimed invention.

Examiner has failed to make out a *prima facie* case that Applicants claims fail to comply with the written description requirement. Nevertheless Applicants have amended their claims to further clarify the claim language.

2. Claims 1-8 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention.

Examiner refers to the same language as above and asserts that it is not clear what Applicants mean by:

"a plurality of exterior fasteners extending through said chamber wall and into said showerhead, with said plurality of exterior fasteners structurally isolated from said chamber interior."

Applicants respectfully suggest that Applicants are required

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to give Applicants claim language its **plain meaning**.

See e.g., MPEP 2111.01:

During examination, the claims must be interpreted as broadly as their terms reasonably allow. **This means that the words of the claim must be given their plain meaning** unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

When not defined by applicant in the specification, the words of a claim must be given their plain meaning. In other words, they must be read as they would be interpreted by those of ordinary skill in the art. *In re Sneed*, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir. 1983).

Nevertheless Applicants have amended their claims to further clarify the claim language.

Claim Rejections under 35 USC 103

1. Claims 1 and 2 stand rejected under 35 USC 103(a), as being unpatentable over Masuda et al. (US PUB 2002/0000197) in view of Ohta (US 4,526,132).

Examiner asserts that Masuda et al. teaches a processing

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chamber having a lateral surface engaging the chamber wall (and refers to **entire document**).

Masuda et al. show a schematic representation of a showerhead 12 Figure 2 that is only described as "having small holes so that the raw material gas introduced into the gas storing chamber 18 passes through the small holes of the shower plate 12 and sprayed into the reactor chamber" (see paragraph 0088, 0111, 0121).

Masuda et al. nowhere suggests or discloses how the showerhead 12 is installed. Masuda et al. nowhere describes that the showerhead engages the chamber wall. One of ordinary skill in the art would not assume or conclude from the schematic shown in Masuda et al. that the **showerhead engages the chamber wall**.

Ohta discloses a discharger 37 mounted on a flange 39 (see Figure 2, 3 and 4) where holes 51 are provided so that a screwing bolt 52 can be screwed through the hole (col 3, lines 55-60; col 4; lines 12-23), i.e., the bolt 52 **does not extend through the chamber wall (see Figure 3)**.

Thus, even assuming *arguendo*, a proper motivation for

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combining the teachings of Ohta and Masuda et al., attaching the showerhead of Masuda et al. with the flange bolts and holes of Ohta would not produce Applicants invention. It is noted that there is no suggestion that the flange and bolts of Ohta could be successfully used to mount the showerhead of Masuda et al.

Thus, the combination of Masuda et al. and Ohta fail to suggest or disclose several elements of Applicants invention including those elements in **bold type**:

An apparatus comprising:

a process chamber having a substantially vertical chamber wall defining a chamber interior;

a showerhead provided in said process chamber and **having a lateral surface engaging said chamber wall; and**

a plurality of exterior fasteners extending through said chamber wall and into said showerhead, with an exterior of said plurality of exterior fasteners substantially isolated from said chamber interior."

"**First**, there must be some **suggestion or motivation**, either

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in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2. Claims 3-8 stand rejected under 35 USC 103(a), as being unpatentable over Masuda et al. in view of Ohta, above, and further in view of Lilleland et al. (US 6,073,577).

Applicants reiterate the comments made above with respect to Masuda et al. in view of Ohta.

Even assuming *arguendo* a proper motivation for combination, the fact that Lilleland et al. disclose a showerhead electrode (10) and one or more baffle plates (22) above the showerhead electrode (10) and a confinement ring (17) (Figure 1), and nowhere suggests or disclose how the showerhead electrode or

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showerhead electrode assembly is mounted in a process chamber,
does not further help Examiner in producing Applicants invention.

"**First**, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a **reasonable expectation of success**. **Finally**, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Conclusion

The cited references, either individually or in combination, do not produce or suggest Applicants disclosed and claimed invention, and are therefore insufficient to make out a *prima facie* case of obviousness with respect to both Applicants independent and dependent claims.

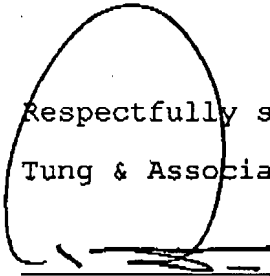
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The Claims have been amended and new claims added to further clarify Applicants invention. A favorable consideration of Applicants' claims is respectfully requested.

Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,
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